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Use of Oral Mini Pulse Dexamethasone in Vitiligo Patients: Review Article

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ABSTRACT

Background: One to two percent of the population globally suffers from vitiligo, an acquired depigmentation condition of multifactorial etiology. Macules and patches of depigmentation characterize vitiligo. People's moods are affected greatly and depressingly by it. As a result, prompt and effective therapy is necessary. Many individuals are able to slow the advancement of the disease, acquire repigmentation, and achieve cosmetically appealing results with proper therapy. There is a wide range of treatments for vitiligo, including topical corticosteroids (TCS) as monotherapy (as for vitiligo local therapy) or in conjunction with phototherapy or other topical medications in generalized vitiligo. Intermittent administration of large (pharmacological) dosages to maximize therapeutic benefit and prevent side effects is known as dexamethasone oral mini pulse (OMP) treatment. **Objective:** to determine the success of oral dexamethasone in vitiligo management. **Conclusion:** In vitiligo patients, when corticosteroids are provided at the onset or at early stages of disease, they can reduce disease progression and promote repigmentation and in some cases total repigmentation.
Keywords: Oral Mini Pulse Dexamethasone, Vitiligo.

Vitiligo:

A condition known as vitiligo is defined by the lack of pigmentary cells in the epidermis, which causes white patches and macules to appear on the skin [(1)]. Segmental vitiligo (SV) and non-segmental vitiligo (NSV) are the two main types of vitiligo based on clinical presentation. Generalized, mucosal and acrofacial NSV are all types of NSV. Other clinical forms of vitiligo, such as, inflammatory, confetti-like (punctate), localized and trichrome, have been recorded in the literature [(2)].

Oral Mini Pulse Dexamethasone:

High numbers of cytotoxic CD8+ T cells are found in the blood of patients with vitiligo compared with healthy controls. It is hoped that oral corticosteroids will arrest the progression of lesions in patients with active illness, and that repigmentation will occur as a result of their immunosuppressive properties [(3)].

Instability of disease is indicated by a number of indicators (koebnerization and confetti-like macules). In making the decision to begin oral corticosteroid medication, physicians may consider these markers [(4)].

Corticosteroids in vitiligo act by reducing complement-mediated cytotoxicity. Levels of antibodies against the melanocyte surface have been found in patients with unstable vitiligo who showed good results using systemic corticosteroids [(5)].

High-dose pulsed therapy, daily oral low dosage corticosteroids and mini pulse regimen have all been utilized as systemic corticosteroids. In more than 85% of cases, low-dose oral prednisolone (0.3 mg/kg) given daily for two months and a high dosage of intravenous methylprednisolone (8 mg/kg) given three times in a row stopped disease progression and produced some repigmentation in more than 70% of cases, according to research studies [(6)].

Oral corticosteroids can cause weight gain, hyperglycemia, and infection, among other side effects. Additionally, hypothalamic pituitary adrenal (HPA) axis suppression, growth retardation, bone density loss, hypertension, and cataracts are some of the most typical side effects. Corticosteroid discontinuation causes behavioral alterations as well [(7)]. Monitoring of, glucose levels, weight, blood pressure, waist circumference and infections as well as an ocular examination every 6-12 months is recommended for patients on systemic corticosteroids [(8)].

To treat vitiligo, 8 mg/kg methylprednisolone was given for three consecutive days in a month in prior research. Vitiligo individuals were given intravenous 500 mg of methylprednisolone (a half-dose of pulse steroids) for three consecutive days three times each month [(9)]. A spectrophotometer was used to examine the patients. Three out of the five patients who completed three such monthly cycles saw a decrease in white contrast on spectrophotometric examinations, which halted illness development.

When administering systemic corticosteroid therapy, the most commonly used method is to administer supra-pharmacological doses and intermittently administer betamethasone or dexamethasone via oral minipulses. This is done in order to minimize the side effects that occurs when steroids are used in daily basis [(10)]. There are several different types of OMP therapy, but they all include using low doses of cyclical pulsed corticosteroids [(11)].

Only one 5 mg dose is given twice per week, on two consecutive days of the week, for the OMP. Vitiligo progression can be halted at this dosage with little adverse effects. In patients who do not respond to the initial dose, the dosage can be increased to 7.5 mg. When used for two days in a row, a dose of 2.5–3.5 mg per day can be safely administered to youngsters [(12)].

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Non-segmental vitiligo was initially treated with OMP treatment in a clinical study in 1993. Betamethasone/dexamethasone 5 mg twice a week for two days a week was pioneered in studies in India, where it was shown that 90% of patients had disease progression stopped after treatment, one of the most important studies in the history of observational researches and clinical trials [13].

Most individuals got response within a month to three months. As a result, numerous people have been able to return to their pre-disease appearance. Repigmentation might not happen at all in other circumstances [14].

OMP's ability to arrest the progression of active vitiligo has been evaluated in numerous trials. Patients in Austria with vitiligo were given oral dexamethasone pulse treatment as part of the trial by **Radakovic-Fijan *et al.*** [15]. On two consecutive days each week, 10 mg dexamethasone was given to each patient for a maximum of 24 weeks. Patients with active vitiligo were treated for an average of 18.2 ± 5.2 weeks, with 22 of 25 patients (88 percent) experiencing disease remission. More than half of the patients showed some degree of repigmentation after the procedure (10.3 percent). In 21 cases, no reaction was observed (72.4 percent). They monitored adverse effects on a regular basis. Weight gain, sleeplessness, acne, agitation, menstrual irregularities, and hypertrichosis were among the side effects reported by 20 individuals (69 percent) [15].

Active disease progression was halted in 91.8 percent of the 444 patients of progressive vitiligo treated with oral dexamethasone 2.5 mg twice a week, according to a retrospective investigation by **Kanwar *et al.*** [12]**. Bishnoi and Singh** [16] carried out additional research on this topic, which showed to be safe and beneficial in patients with active vitiligo when dexamethasone 2.5 mg twice weekly was used. Even though their trial employed a lesser dose of oral corticosteroids compared to **Radakovic-Fijan *et al.*** [15]. The results were similar and active disease progression was suppressed in a similar period (13.90 weeks) in their trial by OMP compared to the previously described studies, however there were fewer serious side effects [16, 17].

There have been numerous researches comparing oral mini pulse therapy to other treatment methods. In a 42-person study, the combination of dexamethasone mini pulse and oral methotrexate (MTX) was found to be safe in addition to their efficacy. One of three groups was chosen at random for each patient. Three times a week, 15 mg MTX was given to group A, spaced out by 12 hours between each dose. Those in group B received dexamethasone at a dose of 5 mg two times per week for two days. The treatment was given to all groups for three months at a time. According to the data, Group C had a significant decrease in illness duration compared to the other groups [18, 19].

In research comparing phototherapy and oral mini pulse corticosteroid, 37 percent of patients showed a repigmentation rate of more than 75 percent after six months of treatment with the OMP + NB-UVB**.** These findings of **Patra *et al.*** [20] showed that there was a greater repigmentation rate of > 75 percent than the 18 percent and 8 percent repigmentation rates observed in the OMP + PUVA and OMP + BB-UVB therapy groups**.**

180 days of treatment with either mycophenolate mofetil (MM) at doses up to 1 g twice daily or dexamethasone 2.5 mg twice weekly were used in the study. 80 percent of patients in the corticosteroid group and 72 percent of individuals in the MM group obtained a halt in disease activity. Diarrhea and nausea were the most common side events in the MM group. In the MM group, transaminitis and leukopenia forced two patients to cease treatment [16].

Patients with vitiligo that was progressing were given 2.5 mg of oral dexamethasone on consecutive days each week in an earlier trial reported in 2013. It showed that 91.8 percent of these individuals disease progression had halted, and some repigmentation was seen within 16.1± 5.9 weeks on average. 12.25 percent of patients had a recurrence, while the average disease-free survival before the first relapse was 55.7± 26.7 weeks. 9.2 percent of individuals had side symptoms that were consistent with oral corticosteroid usage [12].

For example, patients with high blood pressure and diabetes mellitus can follow the mini-pulse regimen. Pregnant women should avoid mini pulse treatment. Compared to daily corticosteroid medication, there are fewer side effects, but they can still be visible. Weight gain, acneiform outbreaks, gastrointestinal discomfort, hiccups, headaches, and a terrible taste in the mouth are the most typical side effects of steroid injections [21]**.** Oral prednisone may be administered if the OMP fails and disease progression did not slow down [22]**.**

CONCLUSION:

In vitiligo patients, when corticosteroids are provided at the onset or early stages of disease, they can reduce disease progression and promote repigmentation, in some cases resulting to total repigmentation.

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